Able tools Rehabilitation Equipment & Solutions

NOVOTEC MEDICAL Get fit. Stay fit.

Galileo® Training

Functional principle of Galileo® Therapy

The principle of Galileo is based on the natural movement of human gait. Galileo's side-alternating motion is similar to a seesaw movement with variable amplitude and frequency, and therefore stimulates a movement pattern similar to human gait. The rapid movement of the training platform causes a tilting movement of the pelvis, just like when walking, but much more frequently. To compensate, the body responds with rhythmic muscle contractions, alternating between the left and right side of the body. From a frequency of about 10 hertz onwards these muscle contractions are not a conscious process but, rather, are a reflex. This stretch reflex activates the muscles in the legs, the stomach and the back right up into the trunk.

The number of stretch reflex contractions per second is determined by the adjustable training frequency. For example, if a training frequency of 25 hertz is selected, 25 cycles of contraction in flexor and extensor muscles occur per second. A training session of 3 minutes at 25 hertz therefore causes the same number of muscle contractions as walking a distance of 4,500 steps.

The vibrations generated by Galileo can be continuously varied in amplitude and frequency independent of body weight.

Frequency and amplitude

The frequency in Hertz (cycles per second) is set on the device and always chosen according to the training objective. Thus, low frequencies are used for mobilisation, intermediate frequencies to train muscle function and high frequencies to increase muscle performance. The amplitude, i.e. the deflection of the training platform upwards or downwards, is determined by the foot position. The farther the foot position from the centre of the plate, the more demanding the training is.

During Galileo Therapy the entire chain of muscles in the leg, and all the way up to the trunk, are targeted. Specific training on individual muscle groups can be achieved by simply altering body posture and tension.

Simulation of human gait

Unlike other training platforms with a vertical (up and down) movement, the tilting movement of Galileo Therapy simulates human gait in a physiological way.

Only by this side-alternating movement during Galileo Therapy is the spine stimulated by a slight lateral tilt of the pelvis. On training platforms with a vertical movement, however, the spine is continually compressed.

The physiological stimulation of the spine by the side-alternating function of Galileo allows the back and abdominal muscles to be targeted. On training platforms with a vertical movement this is possible, but to a very limited extent only.

As humans we attempt to keep the head in a steady and upright position as the balance and visual systems function optimally only when in a state of rest. Due to the design of the machine, no significant vibrations are transferred to the head during Galileo Therapy because the training platform only simulates human gait. The body, therefore, is able to maintain a stable torso and head.

Because Galileo Therapy produces similar stimulus patterns used when walking, in addition to the basic muscle functions itself, the interaction between different muscle groups and their coordination, is developed perfectly resulting in an increase in muscle power. In the elderly especially, muscle power is the relevant factor in preventing falls that can cause hip and femoral fractures. Due to its low burden on the cardiovascular system Galileo Training is ideal for the elderly.

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